Most of the proxies use annual cost factors based on historical expenses in the same way that SWBT cost studies use such factors. The HM2.2.2 however modifies this approach by arbitrarily adjusting the historical expenses downward. Costs determined on a per-line basis may also be estimated from historical data to provide reasonable inputs for any model. Each of these approaches should be tested against the overall criteria and the purposes of the models.

SWBT computes its annual charge factors by taking the ratio of current expenses to a measure of current investment. Revaluing embedded investment at current input prices using telephone plant price indices represents a reasonable way to estimate these costs.[30]

Any recommendations regarding yardstick approaches merit additional analysis. In theory, such approaches are capable of using existing verifiable data (actual costs), while providing more efficient forward-looking incentives. Conceptually, yardstick approaches can address concerns that universal service subsidies may result in inflated costs or, alternatively, insufficient cost-reduction incentives. However, such a yardstick approach requires careful construction if it is to achieve its goals. For example, the Staff suggests that the yardstick might be set equal to the lowest observed cost for each cost category.[31] This is a deficient design for a benchmark. It provides superior cost reducing incentives for all but the most efficient firm in the

[30] SWBT performed such a calculation in evaluating HM2.2.2 by restating embedded investments as reported on ARMIS on a current cost basis. See ex parte letter from Todd F. Silbergeld, Director-Federal Regulatory, SBC Communications Inc., to James D. Schlichting, Chief, Common Carrier Bureau, Competitive Pricing Division, October 29, 1996, p. 4.

[31] Staff Analysis, para. 68.

market, and also ignores possible trade-offs made by individual firms. More typically, some appropriate average of other firms' actual costs are used as the benchmark, which is clearly superior to a hypothetical benchmark.

VII. THE COMMISSION SHOULD ASSOCIATE THE RECORD IN THIS PROCEEDING WITH EACH OF THE CITED FCC DOCKETS

In the Public Notice, the Common Carrier Bureau indicated that "[t]he record gathered . . . may at a future date be associated with the official record of certain pending rulemakings to which it may be relevant and may be used to support Commission determinations in those rulemakings."[32] The Commission should turn that "may" into a "will" and use the comments and information provided in response to the Public Notice when evaluating any proposed cost proxy model.

Respectfully submitted,

SOUTHWESTERN BELL TELEPHONE COMPANY

By: _____

Robert M. Lynch
Durward D. Dupre
Michael J. Zpevak
Darryl W. Howard

Attorneys for
Southwestern Bell Telephone Company

[32] Public Notice, p. 1 (emphasis added).

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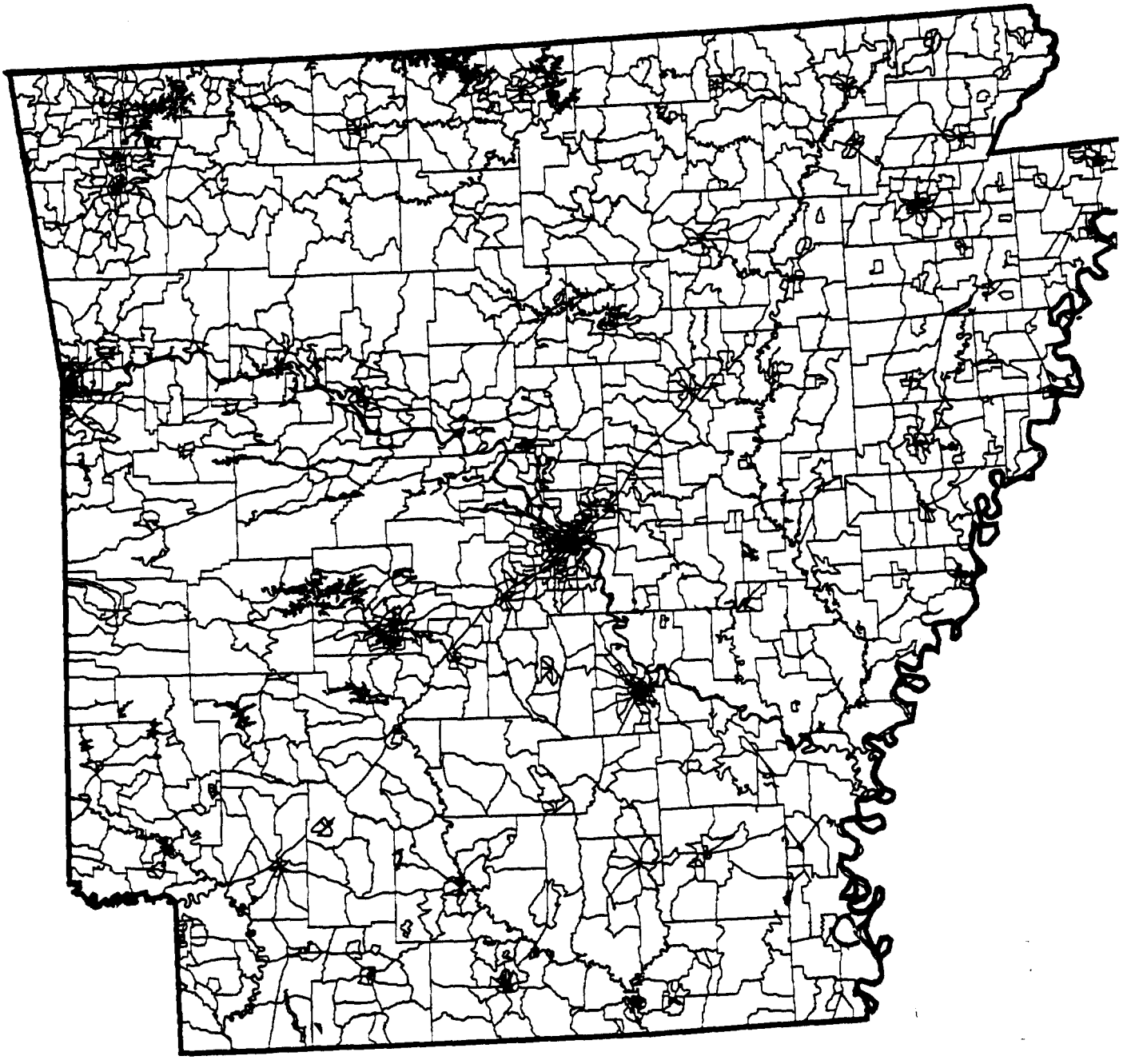
(314) 235-2507

February 18, 1997

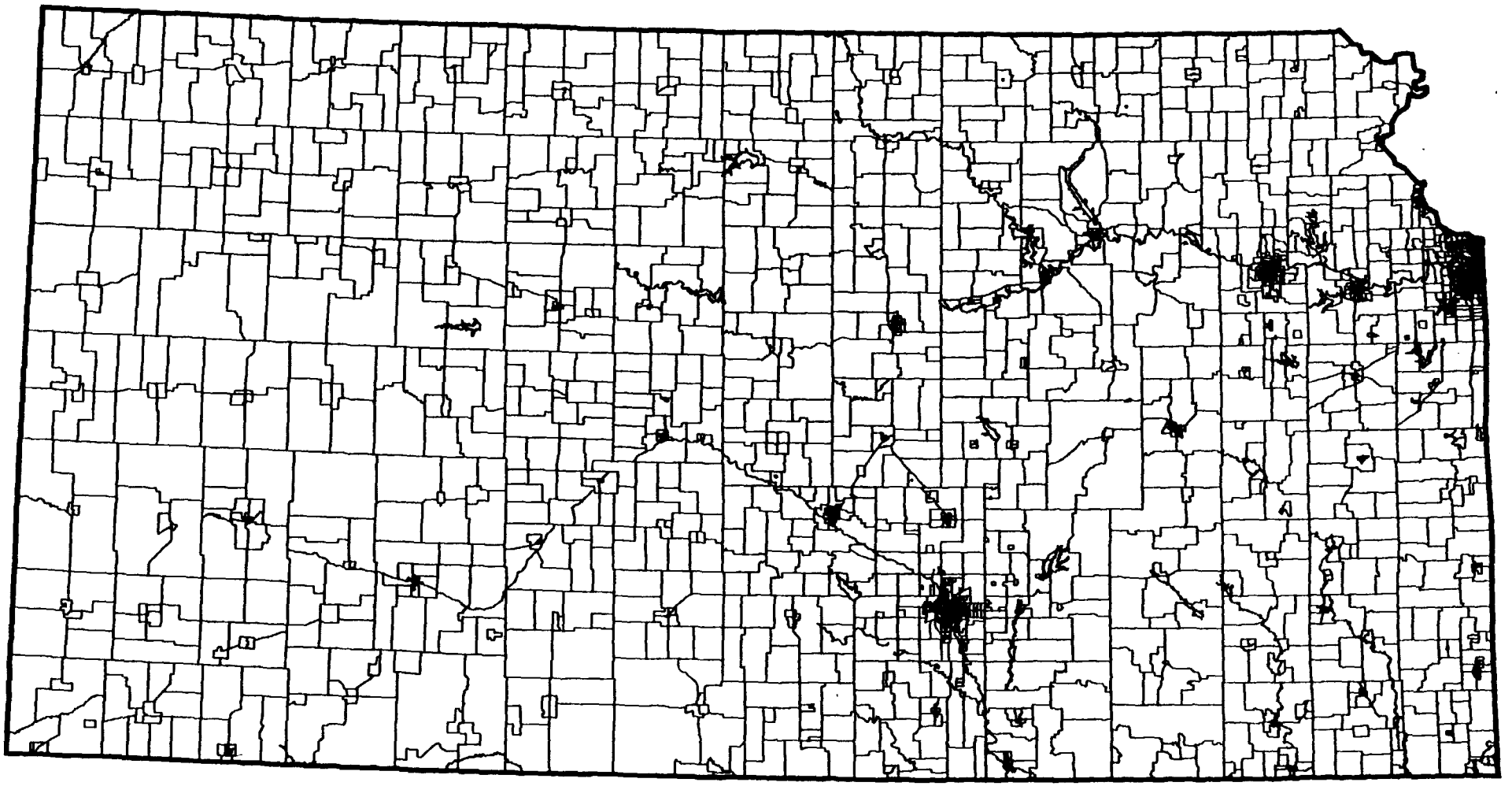
ATTACHMENT 1

Arkansas Block Group Study



MARKETING DEPARTMENT
Director-Market View & Performance Analysi
sdw/mnt1/projects/constable/ark_bgspr

Kansas Block Group Study



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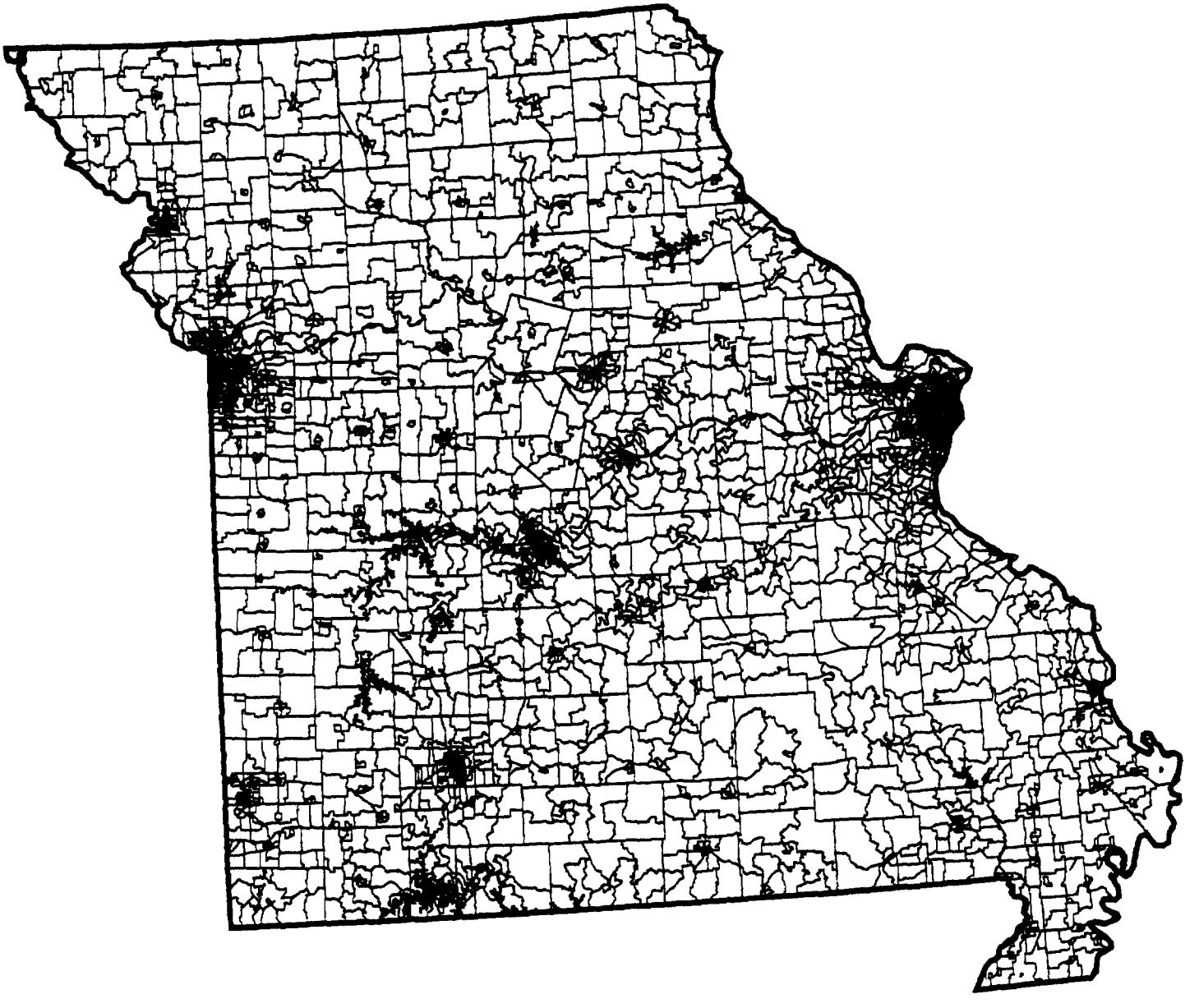
Missouri Block Group Study



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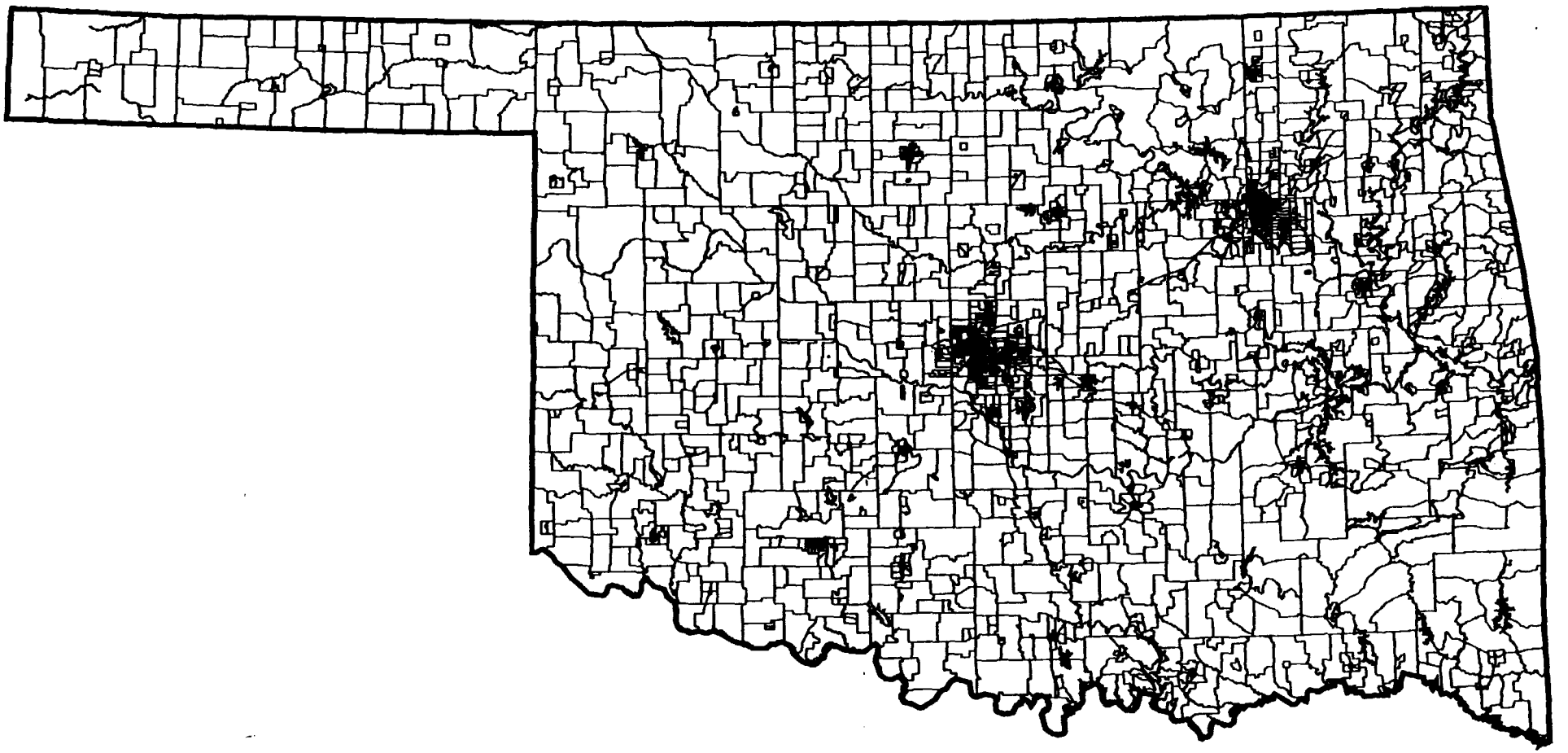
Oklahoma Block Group Study



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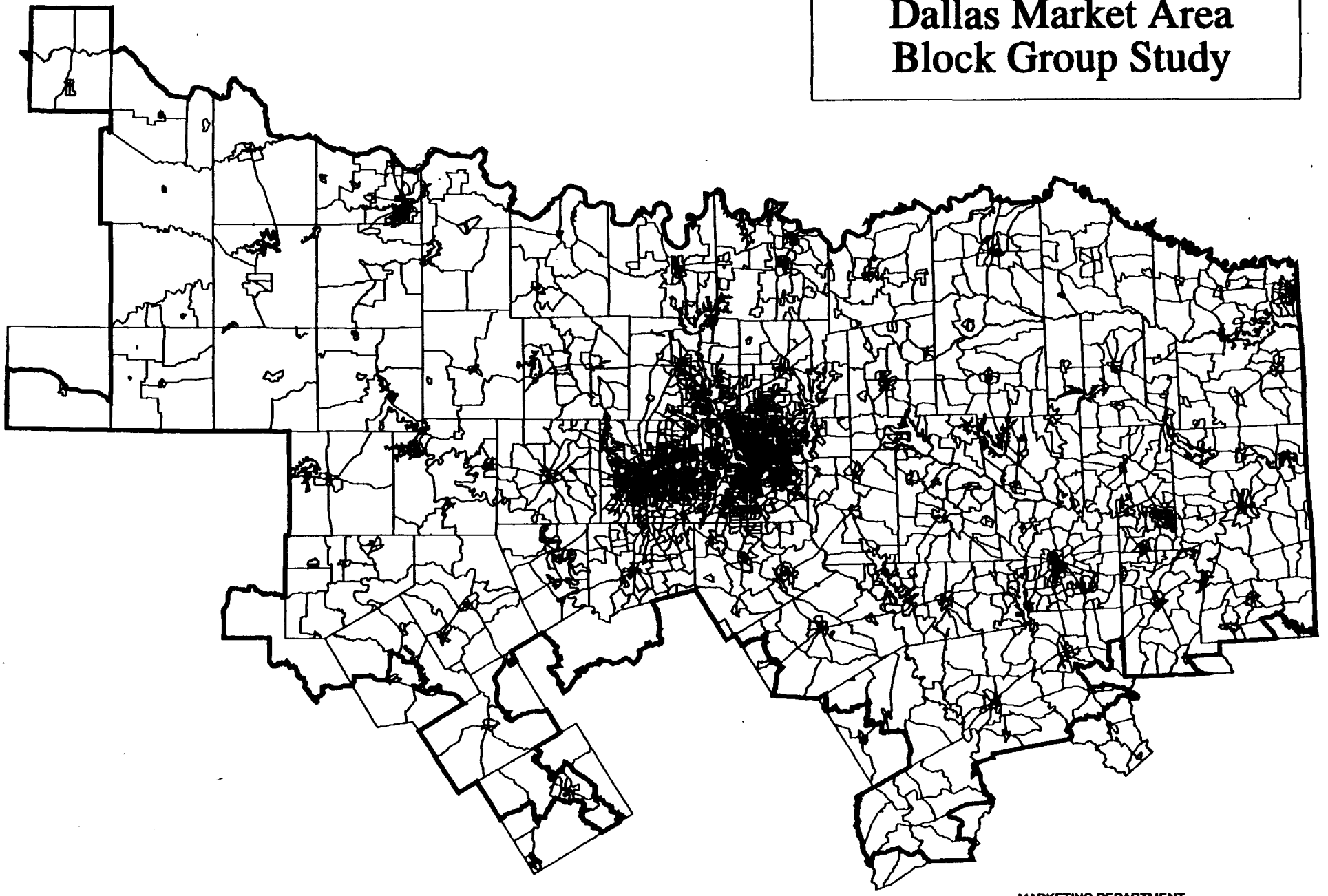
Dallas Market Area
Block Group Study



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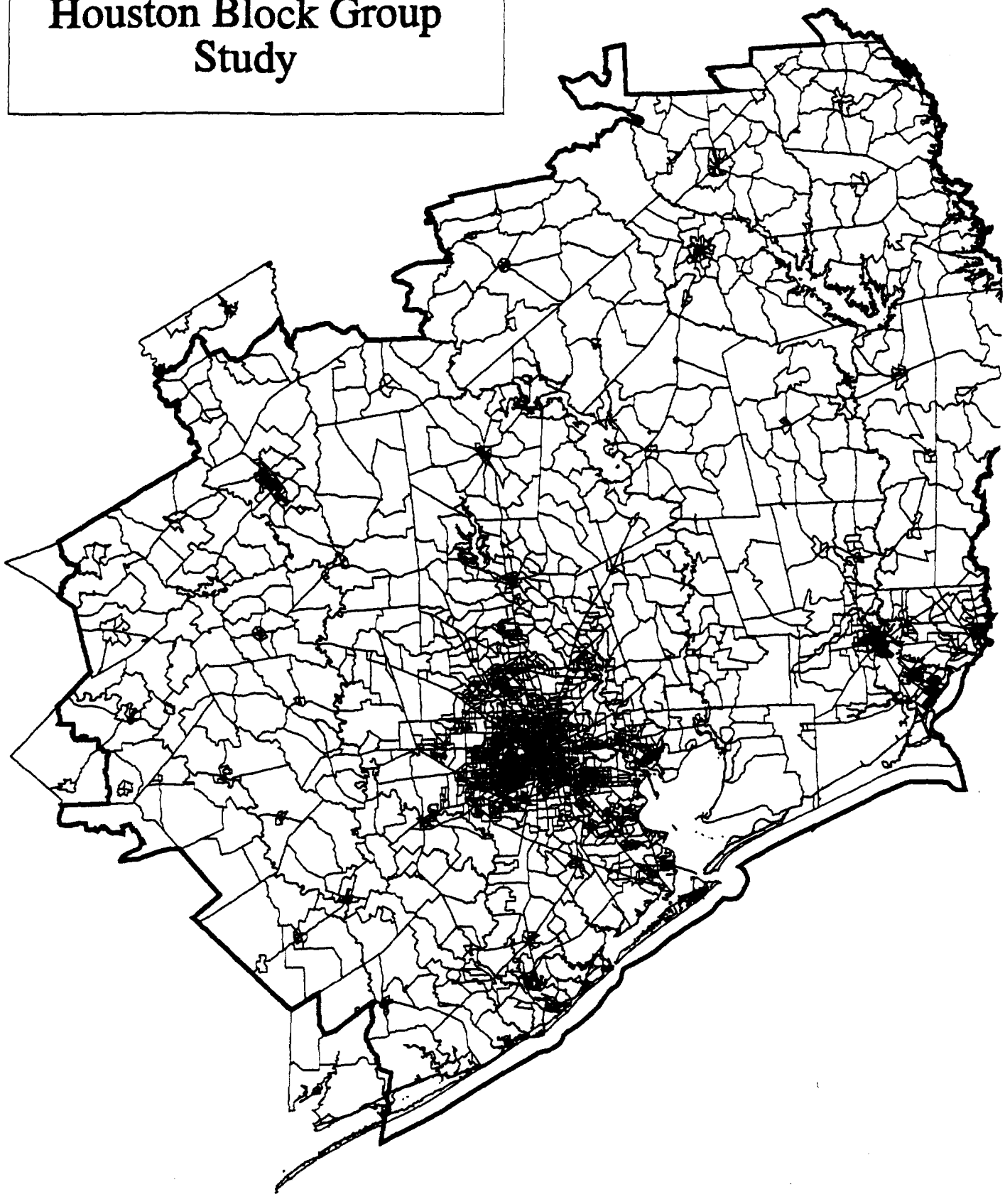

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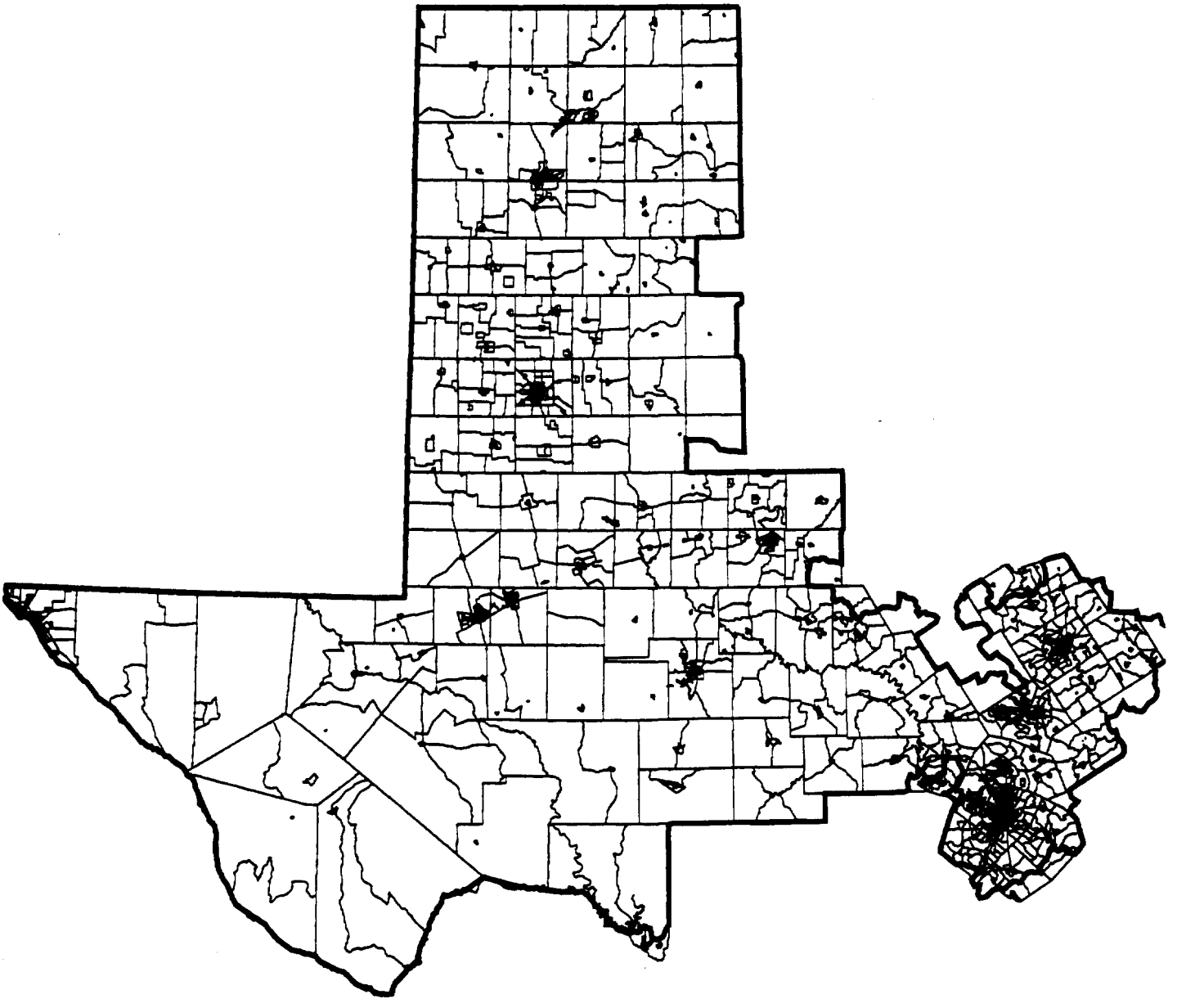

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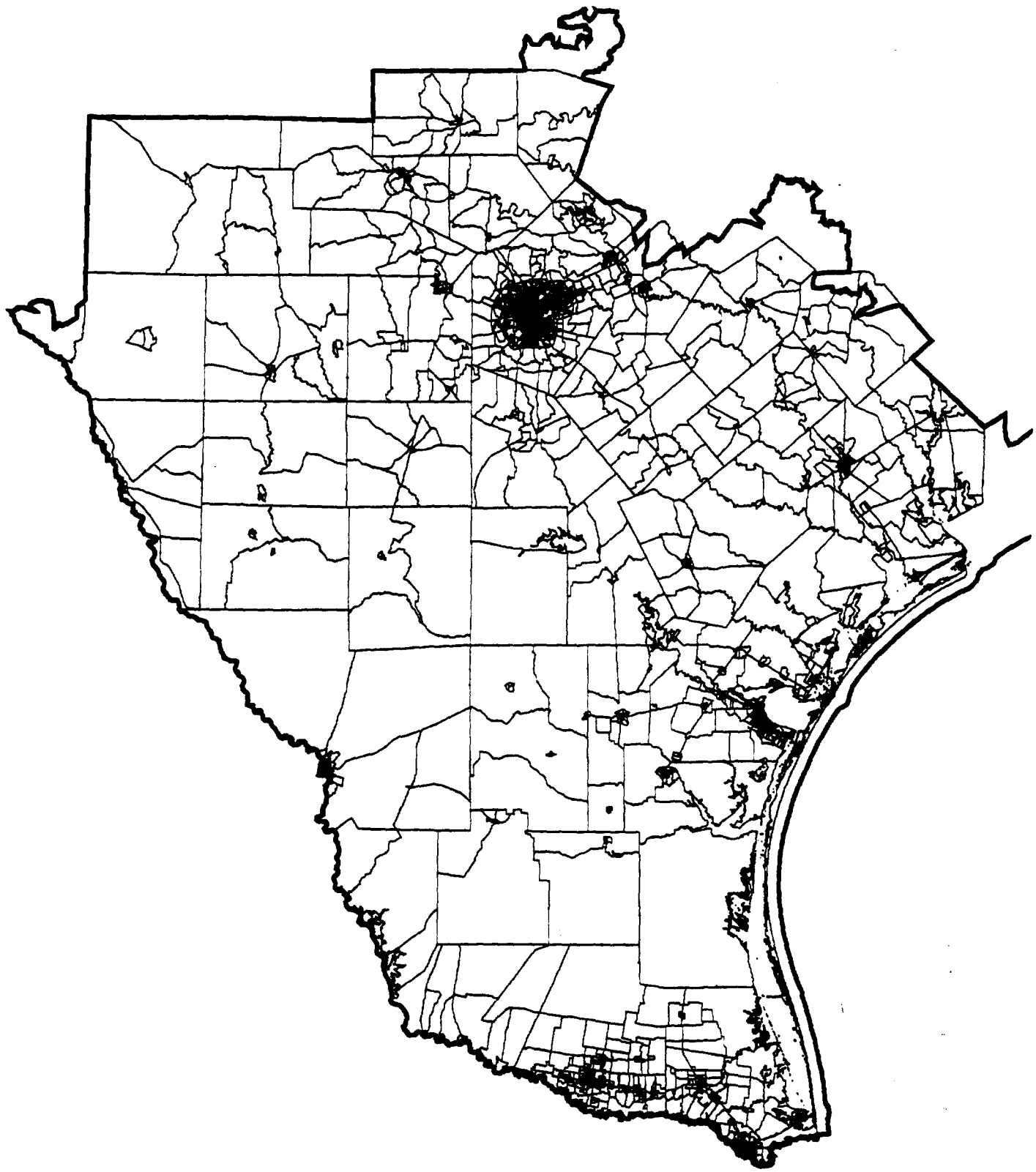
South Texas Block Group Study



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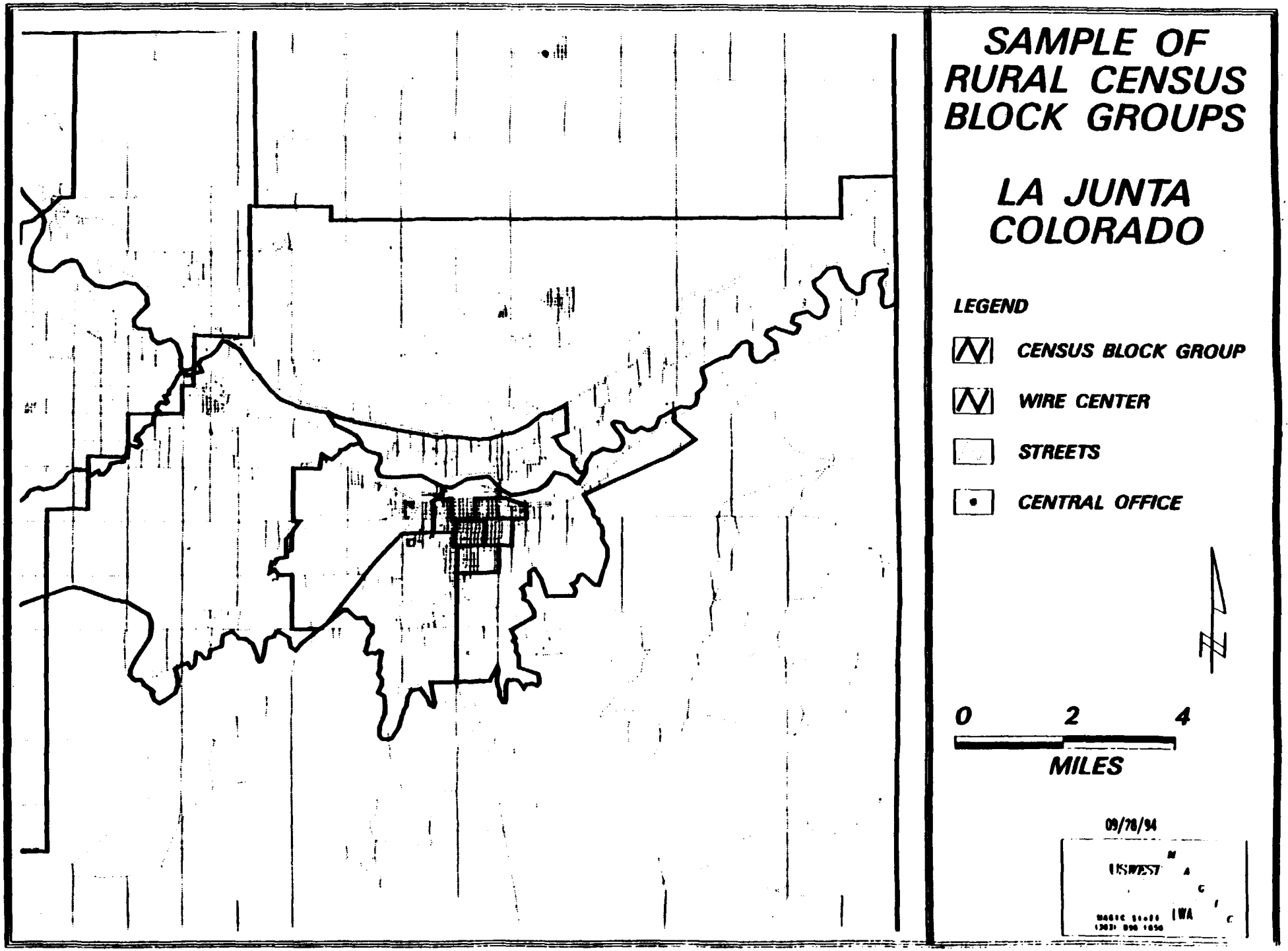
ATTACHMENT 2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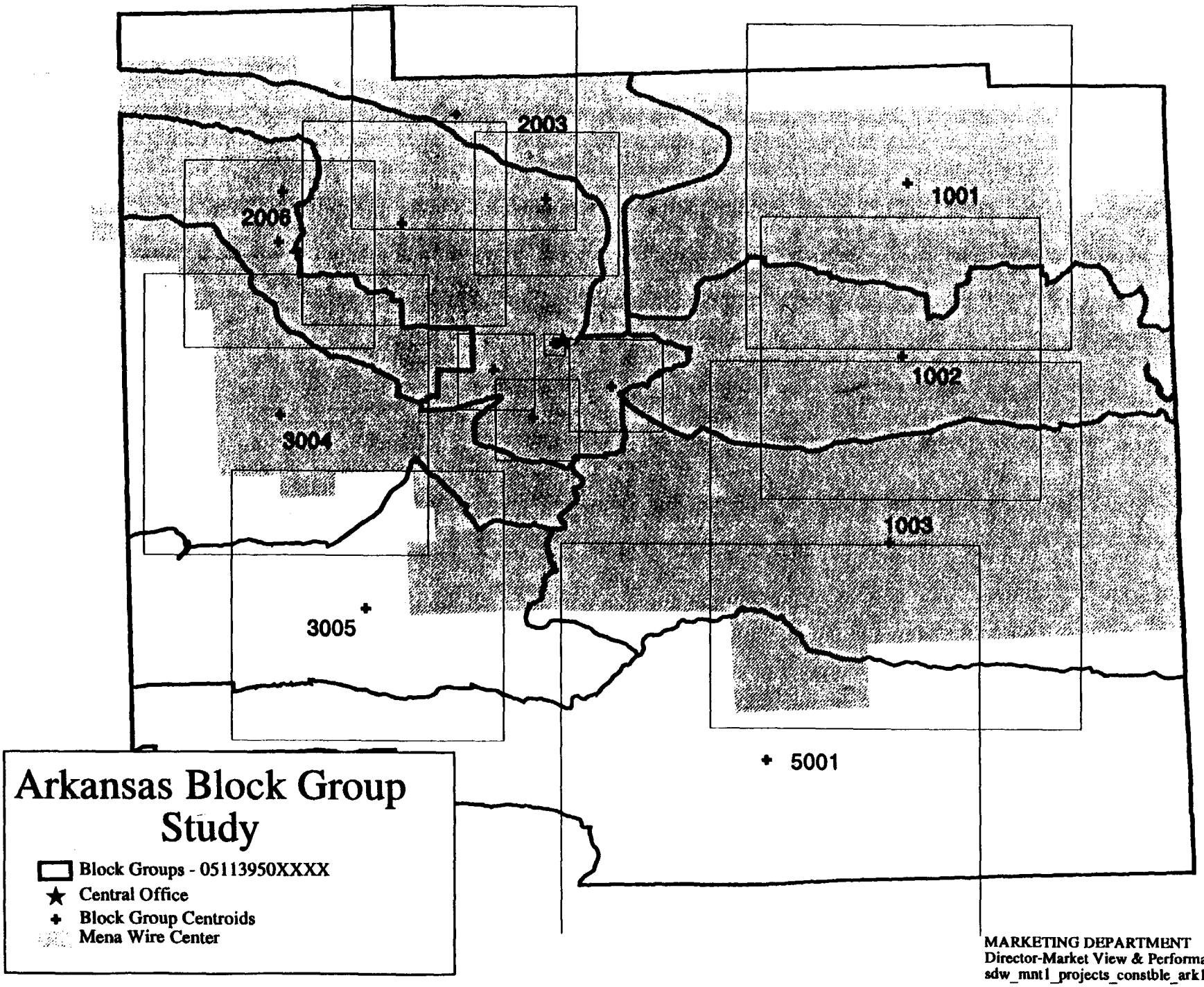
ATTACHMENT 3



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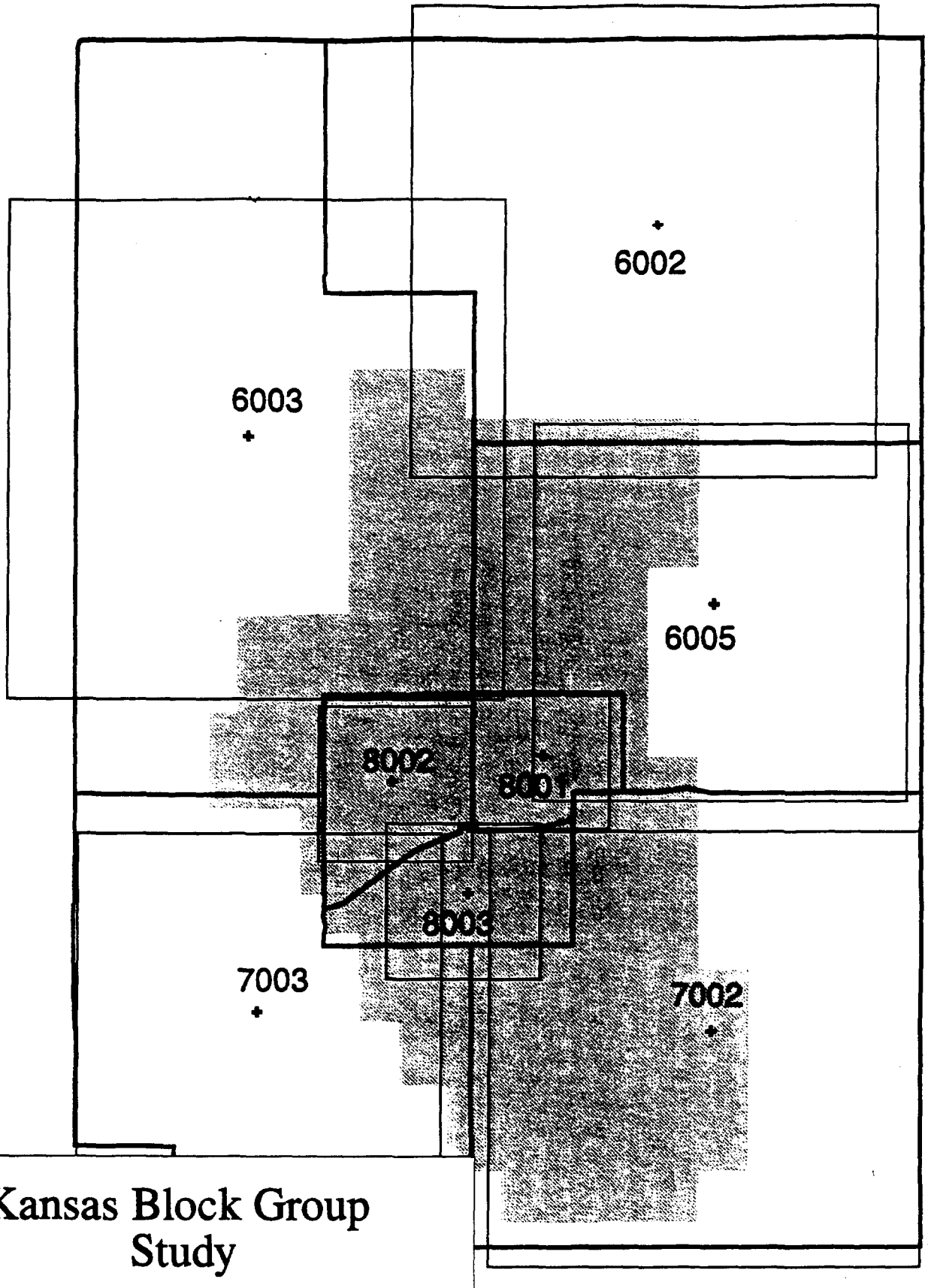

Kansas Block Group Study

★ Central Office
Block Groups - 20183975XXXX
Block Group Centroid
Smith Center Wire Center

MARKETING DEPARTMENT
Director-Market View & Performance Analysis
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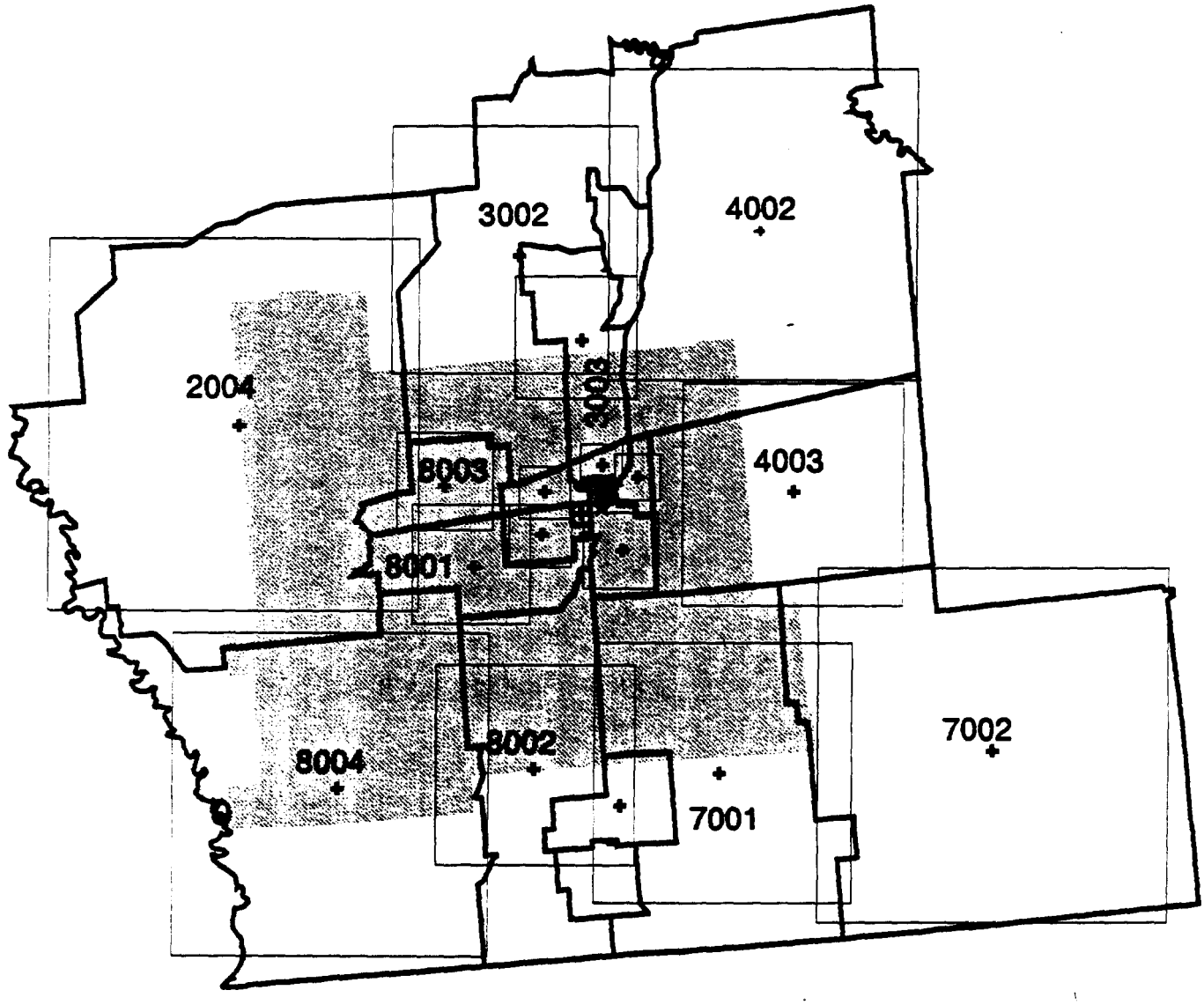
Missouri Block Group Study



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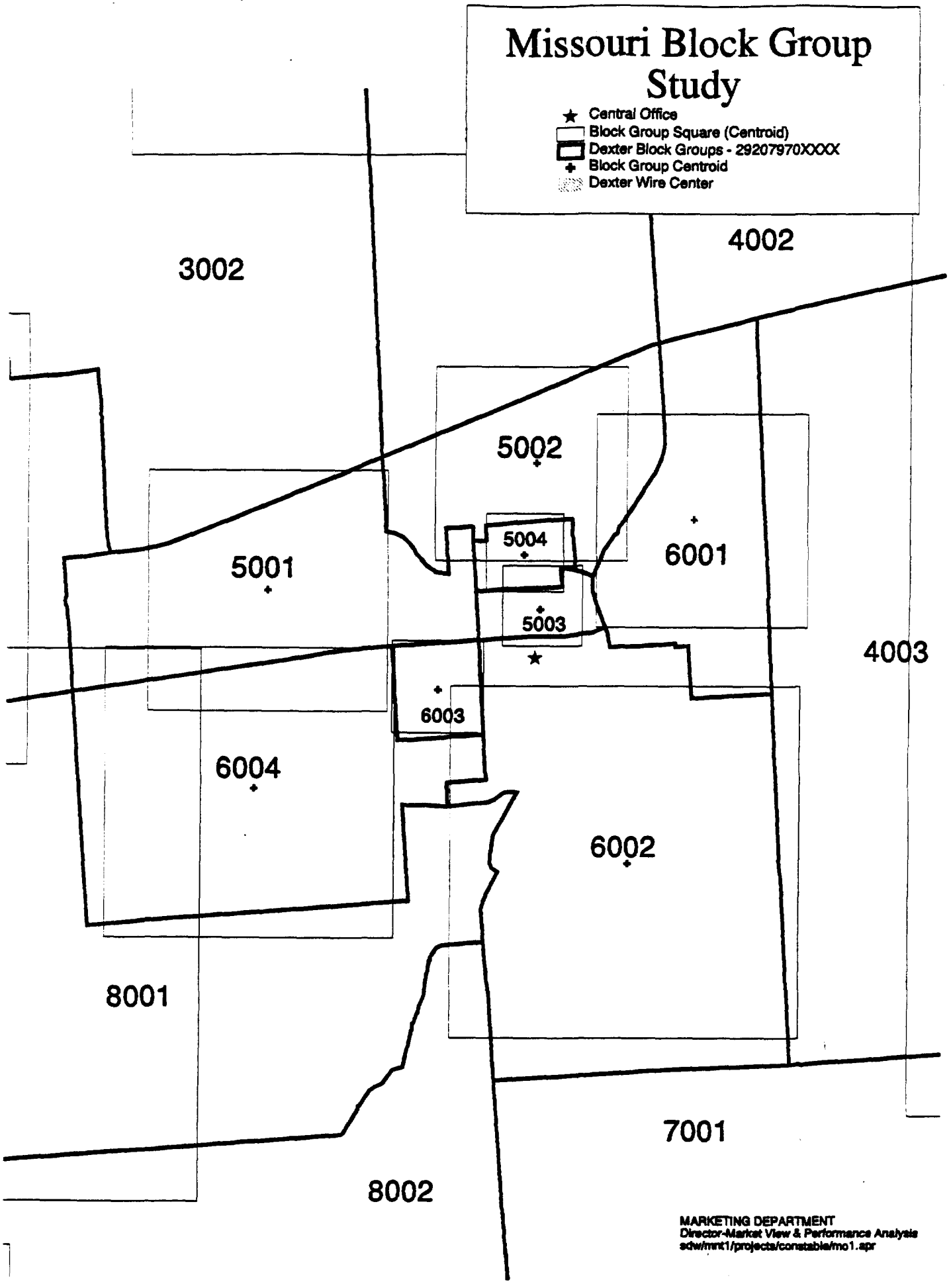
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Director-Market View & Performance Analysis
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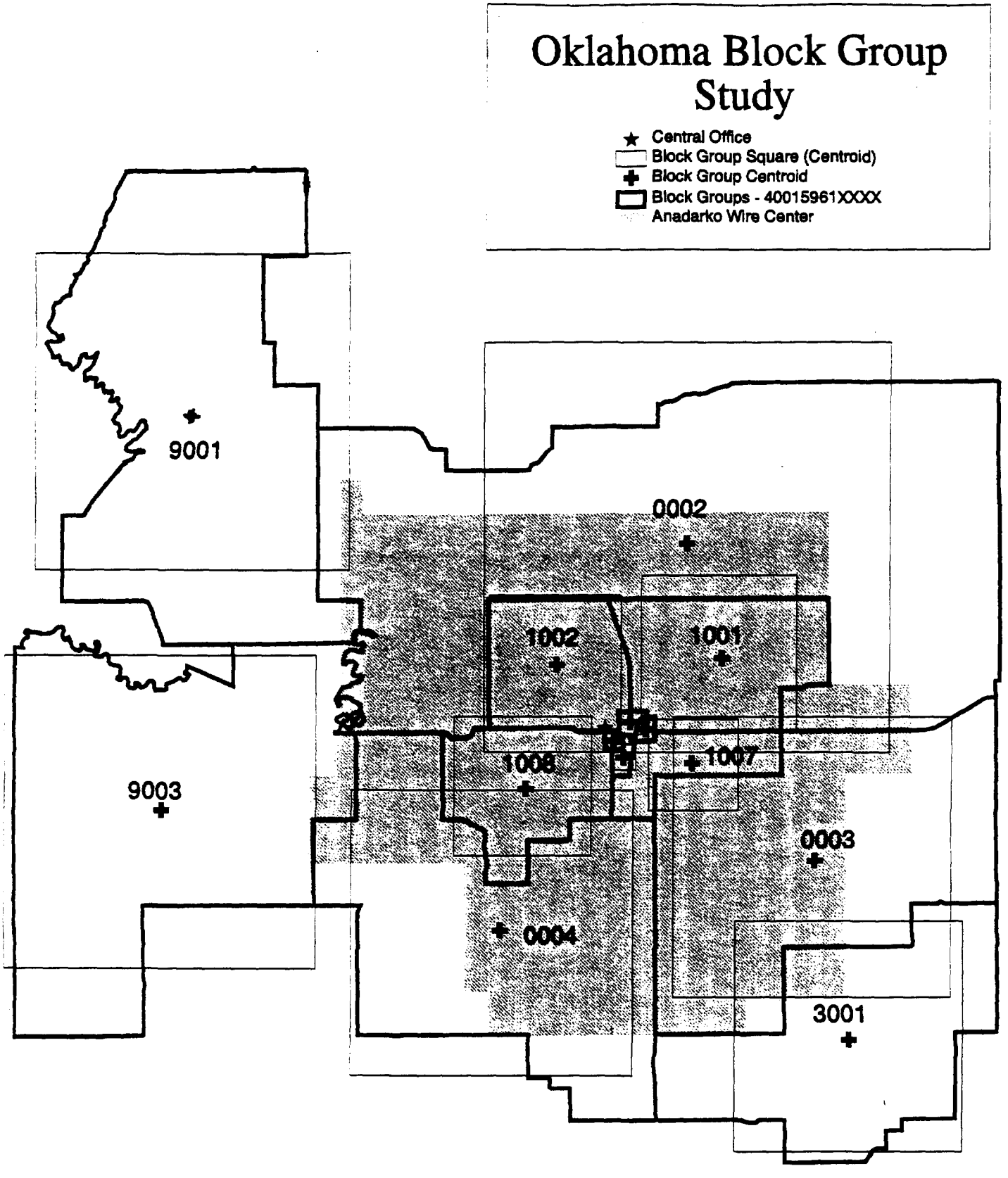
Oklahoma Block Group Study



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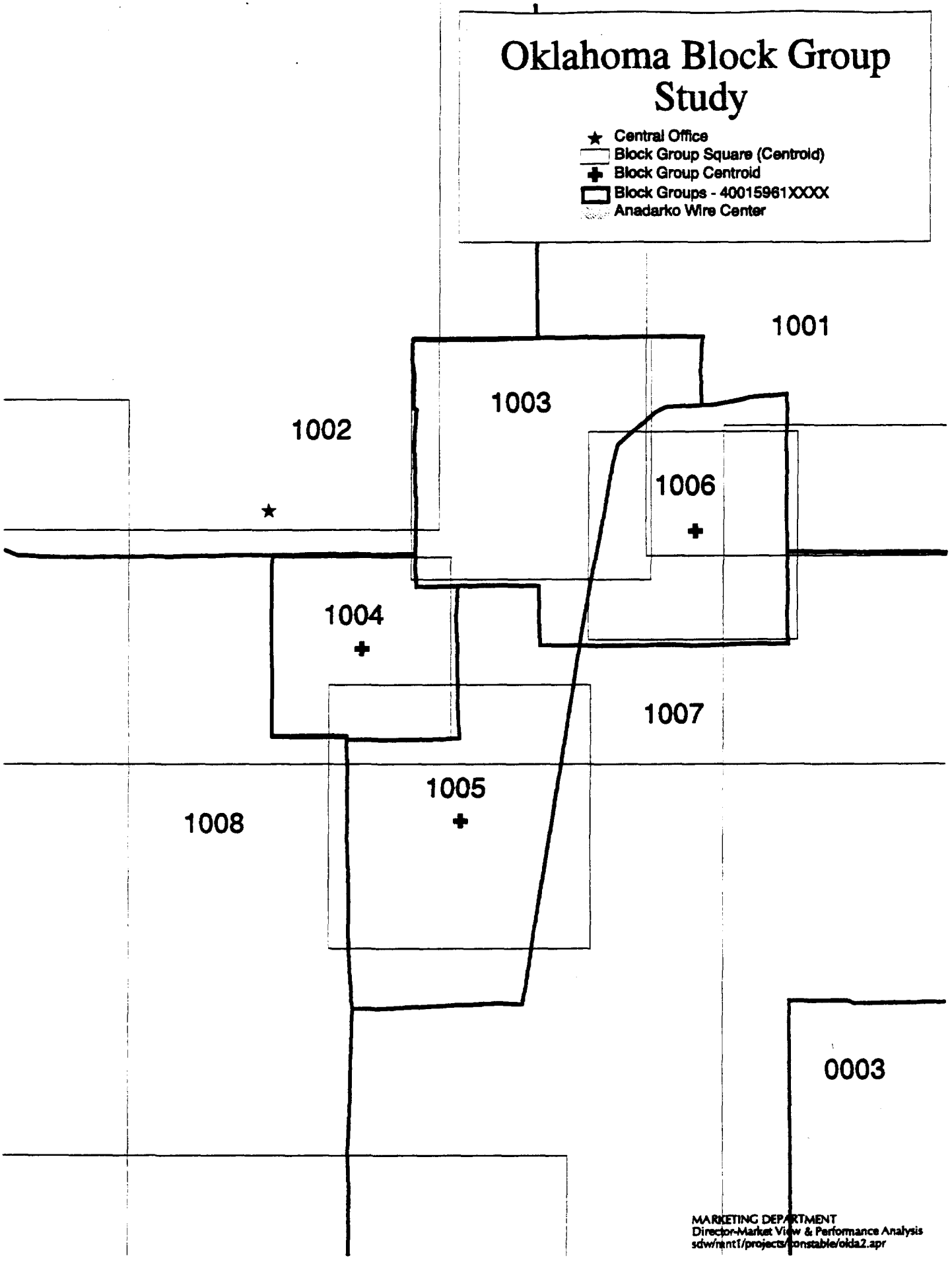
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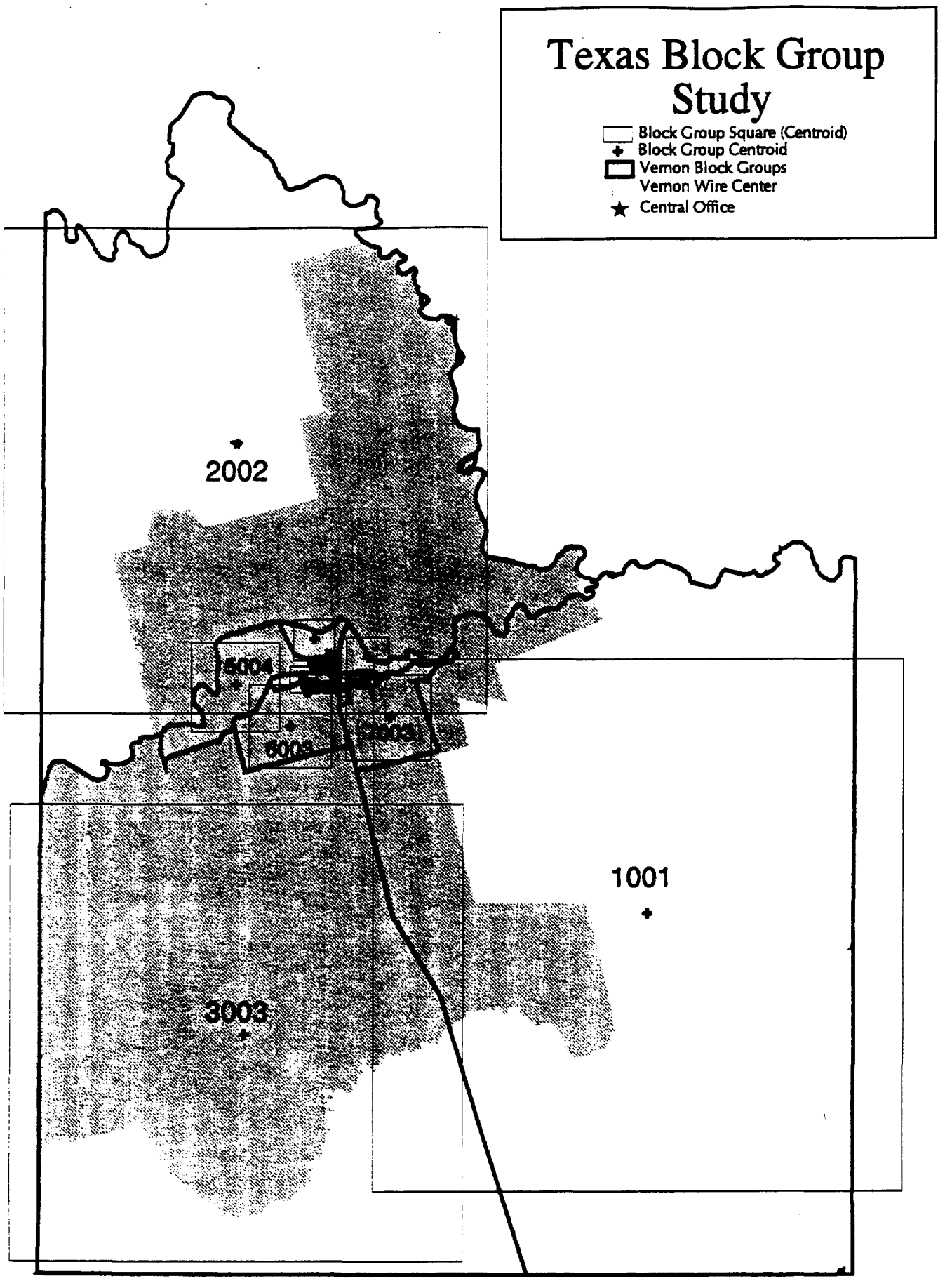
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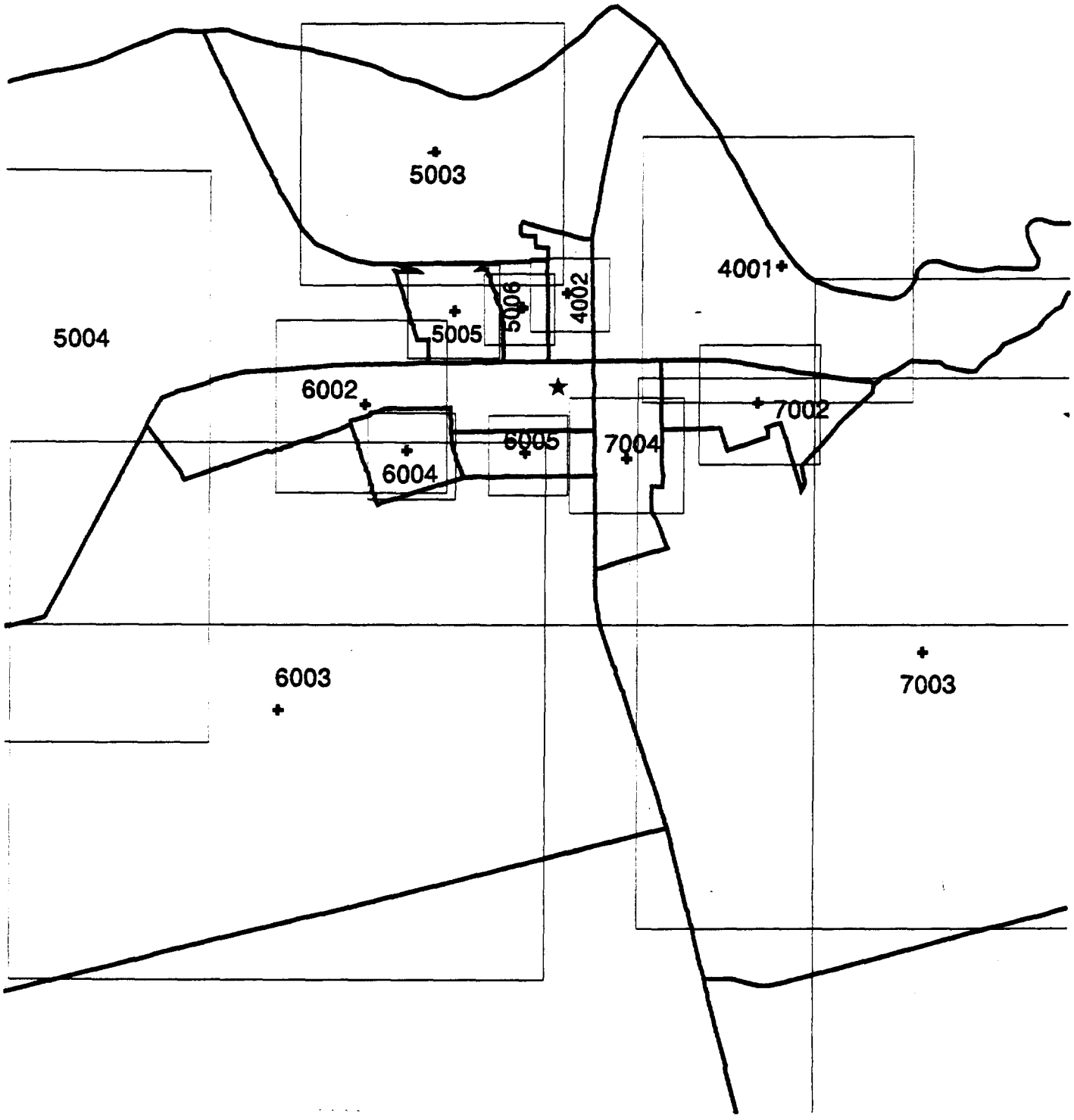
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The Need to Use Average Fill and/or Cable Size

Most, if not all, forward-looking cost proxy models permit the user to vary fill factors and cable sizes. All of the models are static models - the network is apparently constructed instantaneously using the currently available most efficient technology and existing wire center locations. However, network construction takes place over time and the failure to model this dynamics can be a serious error. One place this problem emerges is in the choice of fill factors and cable sizes.

This analysis focuses on the Hatfield Model's methodology concerning fill factors and cable sizes. Similar analyses can be conducted for the other models with similar conclusions - at a minimum, average fill factors over the projected service life of the plant, and not the ideal fill factor for the reconstructed network, should be used. In the absence of a fully dynamic model, the average fill factor should be one-half of the ideal fill factor chosen by the user. The derivation of this result for the Hatfield Model follows.

Assume, as does the Hatfield Model, that there will be 4 distribution cables to serve the demand in a CBG, denoted as x lines. If fill were 100%, then cable size is given by:

$$cable\ size = \frac{x}{4}. \qquad (1)$$

Given a fill factor of $f < 1$, cable size is given by:

$$cable\ size = \frac{x}{4f}. \qquad (2)$$

Assume that the final demand x is reached after T years (starting at time 0 and running through time T-1, for mathematical convenience) and that growth in lines is constant over the time period, i.e.,

$$x_t = \frac{tx}{T}. \qquad (3)$$

Then, there are two options, neither of which has been used by the Hatfield Model. Option 1 examines choosing the "ideal" cable size and computing the actual time varying fill factor. Option 2 fixes the "ideal" fill factor and computing the actual time varying cable size.

Option 1: Choose the cable size appropriate for the final demand level and allow the fill factor to vary over time, reaching f at time T. Fill at each time t can be computed by:

$$fill_t = \frac{\frac{x_t}{4}}{cable\ size} = \frac{\frac{tx}{4T}}{\frac{x}{4f}} = \frac{tf}{T} \qquad (4)$$

Note that this computation shows one fourth of the lines at each point of time being served by the cable size chosen for the fully constructed network. Average fill is computed by averaging this time varying fill factor:

$$average\ fill = \frac{\sum_{t=}^{T} fill_t}{T} = \frac{\frac{tf}{T}}{T} = \frac{f}{T} \quad t = \frac{f}{T}\frac{T}{2} = \frac{f}{2} \qquad (5)$$

So, the average fill will be exactly one-half of the final fill factor. This necessarily results from the construction of the network over time - the final "ideal" fill factor and cable size can not be maintained over the entire construction period.

Option 2: Here we choose the fill factor and force it to be constant over time. As a consequence, the cable size must vary over time with the growing network in order to maintain the fixed fill factor. From (2) above, a fixed fill factor = f, means that

$$cable\ size_t = \frac{x_t}{4f} = \frac{\frac{tx}{T}}{4f} = \frac{tx}{4fT} \qquad (6)$$

and average cable size is given by:

$$average\ cable\ size = \frac{\frac{tx}{4fT}}{T} = \frac{\frac{x}{4fT}}{T}\frac{T^2}{2} = \frac{x}{8f} \qquad (7)$$

which is exactly one-half of the cable size given in (2) above.

What it all means: The Hatfield Model, like the other cost proxy models being considered by the Commission, is static but network construction is dynamic. The result is that the Hatfield Model fixes its desired cable size and fill factor according to what its authors believe is efficient. Even if we accepted their judgments, these efficient levels would only be reached over a period of time.